

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEFAN RÖEBER and HANS-DIETER HERRMANN

Appeal No. 1998-0568
Application 08/413,230

HEARD: October 25, 2001

Before PAK, WALTZ and JEFFREY SMITH, **Administrative Patent Judges**.

WALTZ, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1, 2 and 5 through 17 as amended subsequent to the Final Rejection (see the amendment dated Nov. 25, 1996, Paper No. 9, entered as per the Advisory Action dated Dec. 19, 1996, Paper No. 10). Claims 1, 2 and 5-17 are the only claims remaining in this application.

According to appellants, the invention is directed to a multilayer plastic pipe comprising at least one layer of a polyolefin, at least one layer of a thermoplastic polyester containing a compound with two or more epoxy, oxazoline, or isocyanate groups, and at least one layer lying between the above two layers which is a coupling agent layer containing reactive groups to cohesively bond adjacent layers to one another (Brief, page 2). A copy of illustrative claim 1 is reproduced below:

1. A multilayer plastic pipe comprising the following layers:

- I. at least one layer comprising a polyolefin,
- II. at least one layer comprising a thermoplastic polyester containing at least one compound having two or more epoxy groups, having two or more oxazoline groups, having two or more isocyanate groups, and combinations thereof, and
- III. at least one layer lying between layers I and II and comprising a coupling agent containing reactive groups, wherein adjacent layers are cohesively bonded to one another.

The examiner has relied upon the following references as evidence of obviousness:

Röber et al. (Röber)	5,313,987	May 24,
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1994

Katsuto et al. (Katsuto) 2 029 766 Mar. 26,
1980
(published UK Patent Application)

The claims on appeal stand rejected under 35 U.S.C. § 103 as unpatentable over Röber in view of Katsuto (Answer, page 3). We reverse the examiner's rejection essentially for the reasons set forth in the Brief and the reasons stated below.

OPINION

The examiner finds that Röber "discloses the recited multilayer plastic pipe comprising a layer of polyamide and a thermoplastic polyester where the two layers are coupled together by a coupling agent made from reactive groups made from polybutylene or polyethylene terephthalate and linear crystalline polyester compounded with at least two isocyanate groups...". Answer, page 3. We disagree.

The examiner has not presented any evidence that Röber discloses a coupling agent, much less one made from reactive groups or a terephthalate compounded with at least two isocyanate groups (see the Answer, pages 3 and 5). Röber

discloses that it was known that polyamides and polyesters are incompatible with one another, resulting in a lack of adhesion between laminate layers of a multilayer composite (col. 1, ll. 40-46). Röber

teaches that polyamides and polyesters are adhesively bonded to one another when the polyester contains a compound with at least two isocyanate groups (col. 2, ll. 8-9). However, Röber only teaches that the two layers are adhesively bonded together but is silent as to the coupling mechanism (col. 5, ll. 14-20).

The examiner further finds that "Röber discloses all of the recited [claimed] structure with the exception of making the outer layer of modified polyolefins and having a maleic acid adhering layer." Answer, page 3. The examiner applies Katsuto to remedy the deficiencies of Röber, finding that Katsuto discloses interchangeable polyolefin and polyamide outer layers in a similar pipe structure and uses a coupling

layer having a maleic acid anhydride added to a base polymer to adhere the layers together (Answer, paragraph bridging pages 3-4). From these findings, the examiner concludes that it would have been obvious to one of ordinary skill in the art to modify the pipe of Röber by substituting a polyolefin layer for the outer polyamide layer and to provide a maleic anhydride coupling layer to couple polyolefins and polyesters as suggested by Katsuto (Answer, page 4).

Katsuto discloses a laminar thermoplastic pipe structure comprising a plurality of thermoplastic resin layers bonded by an intervening layer of a maleic acid-modified block copolymer of a conjugated diene and an aromatic vinyl monomer (abstract; page 1, ll. 1-6 and 20-25). Katsuto teaches that the thermoplastic resin layers that can be bonded include polyamide resins, polyester resins, and polyolefin resins (page 3, ll. 50-55). The polyester resins taught by Katsuto are exemplified as

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polyethylene terephthalate, polycyclohexylene and 1,4-dimethylene terephthalate (sentence bridging pages 3-4).

It is well settled that the initial burden rests with the examiner to present a *prima facie* case of obviousness, including showing the motivation, reason, or suggestion for the combination of references. See *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999); *In re Rouffet*, 149 F.3d 1350, 1356, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998). We determine that the examiner has failed to identify any convincing reason, motivation or suggestion why one of ordinary skill in the art would have made the proposed modifications to Röber, since Röber does *not*

teach or suggest use of a coupling layer while Katsuto is directed to a coupling agent that bonds polyolefins and unmodified polyesters, not the polyesters taught by Röber that are modified with a compound having at least two isocyanate groups. Furthermore, a proper analysis under 35 U.S.C. § 103 includes consideration not only of a motivation or suggestion

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to combine references but also a reasonable expectation of success. See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). The examiner has not shown any convincing evidence or reasoning why one of ordinary skill in the art would have had a reasonable expectation of success for bonding the modified polyesters of Röber, where the polyester contains a compound with at least two isocyanate groups, when the coupling agent of Katsuto is only taught for use with unmodified polyesters.

For the foregoing reasons and those set forth in the Brief, we determine that the examiner has failed to present a *prima facie* case of obviousness in view of the reference evidence.

Accordingly, the rejection of the claims on appeal under 35 U.S.C. § 103 over Röber in view of Katsuto is reversed.

The decision of the examiner is reversed.

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REVERSED

CHUNG K. PAK)	
Administrative Patent Judge)	
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THOMAS A. WALTZ)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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JEFFREY T. SMITH)	
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